ABSTRACT OF THE DISCLOSURE

The present invention provides a technique for reducing the number of write barriers without compromising garbage collector performance or correctness. To that end, a compiler defers emitting write barriers until it reaches a subsequent instruction in the mutator code. At this point, the compiler may elide repeated or unnecessary write-barrier code so as to emit only those write barriers that provide useful information to the garbage collector. By eliminating write-barrier code in this manner, the amount of write-barrier overhead in the mutator can be minimized, consequently enabling the mutator to execute faster and more efficiently. Further, collocating write barriers after the predetermined instruction also enables the compiler to generate object code having better cache performance and more efficient use of guard code than is possible using conventional write-barrier implementations.